UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,105	10/03/2005	Santanu Dutta	US030083US2	4183

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EXAMINER
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ART UNIT	PAPER NUMBER
2628	

NOTIFICATION DATE	DELIVERY MODE
03/05/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

		Application No.	Applicant(s)
		10/552,105	DUTTA ET AL.
Office Action Summary		Examiner	Art Unit	
		JACINTA CRAWFORD	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _12/14/2007_.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-16_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-16_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived by
> the manner in which the invention was made.

2.   Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Applicant's Admitted Prior Art (Background and Figures 1 and 2) in view

of Wise et al. (US 2004/0025000), further in view of Duluk, Jr. et al. (US

6,717,576).

As to claim 1, Applicant's Admitted Prior Art discloses a processing system

comprising: a plurality of pipelines, each pipeline of the plurality of pipelines

including a plurality of core pipeline elements that are configured to

sequentially process data as it traverses the pipeline (Figures 1 and 2;

Background, paragraph 1).

Applicant's Admitted Prior Art differs from the invention defined in claim 1 in that Applicant's Admitted Prior Art does not disclose a plurality of auxiliary elements, each auxiliary element of the plurality of auxiliary elements being configured to be selectively coupled between a pair of core pipeline elements of the plurality of core pipeline elements to process the data as it traverses between the pair of core elements.

Wise et al. disclose a plurality of auxiliary elements (control/data tokens), each auxiliary element of the plurality of auxiliary elements being configured to be selectively coupled between a pair of core pipeline elements of the plurality of core pipeline elements ([0036] thru [0085]: note that the data tokens can be added into pipelines for added control functions in the processing stages of the pipeline; also note that they are positioned in the pipeline depending on the processing stages for enhanced performance of functions).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Applicant's Admitted Prior Art's pipelines with Wise et al's method of reconfiguring pipelines to enhance the performance and flexibility of processing data in a pipeline.

Applicant's Admitted Prior Art and Wise do not disclose the auxiliary elements to process the data as it traverses between the pair of core elements.

Duluk, Jr. et al. disclose a reconfigurable pipeline comprising a plurality of pipeline elements used to process data (see Figure 15; note arrows of Figure denotes that data can be processed various ways where some elements are enabled and disabled during execution. Note some elements can be considered core elements (elements 2000, 3000, 4000 and 16000 when input from 2000); some elements can be considered auxiliary elements (elements 6000, 8000, 9000, 10000, 11000, 12000, 14000, 15000) since they are not used in every processing case.)

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Applicant's Admitted Prior Art and Wise et al.'s configurable pipeline to have auxiliary elements to process data within a pipeline as in Duluk, Jr. et al. to enhance the performance and flexibility of processing data in a pipeline.

As to claim 2, Applicant's Admitted Prior Art discloses the processing system wherein the data includes at least one of: video data and graphics data (Background, paragraphs 1 and 2).

As to claim 3, Applicant's Admitted Prior Art discloses the processing system wherein the data that is provided to two or more of the pipelines corresponds to

a common image (Background, paragraph 2).

As to claim 4, Applicant's Admitted Prior Art discloses the processing system wherein the data that is provided to two or more of the pipelines corresponds to different images (Background, paragraph 2).

As to claim 5, Wise et al. disclose the processing system wherein the plurality of core pipeline elements include at least one of: a pixel acquisition element, a pixel formatter, a chroma-keying element, an un-ditherer, a chroma-upsampler, a linear interpolator, a contrast balancer and a color-space converter (Figure 155 shows chroma-upsampler/interpolators, color-space converter, a pixel formatter; see also [2958] and [2970]).

As to claim 6, Wise et al. disclose the processing system wherein the plurality of core pipeline elements include at least one of: a color-lookup table, a color-transient-improver, a sample-rate up-converter, a histogram-modifier, a luminance-sharpener, and a color-feature module (Figure 155 notes a color look-up table, luminance-sharpener (gamma); see also [2970]).

It would be obvious that the auxiliary elements could also comprise these elements.

As to claim 7, Wise et al. disclose the processing system wherein the plurality of core pipeline elements include at least one of: a color-lookup table, a color-transient-improver, a sample-rate up-converter, a histogram-modifier, a luminance-sharpener, and a color-feature module (Figure 155 notes a color look-up table, luminance-sharpener (gamma); see also [2970]).

As to claim 8, Wise et al. disclose the processing system wherein each auxiliary element (control/data tokens) is configured to be selectively coupled between a predetermined pair of core pipeline elements of the plurality of core pipeline elements ([0036] thru [0085]: note that the data tokens can be added into pipelines for added control functions in the processing stages of the pipeline; also note that they are positioned in the pipeline depending on the processing stages for enhanced performance of functions).

As to claim 9, Wise et al. disclose the processing system wherein each auxiliary element includes: a function module, and a switch (adaptation unit), wherein the switch is configured to select among the plurality of pipelines for the selective coupling of the auxiliary element to a select pipeline ([0036] thru [0085]: note that the control/data tokens are in the form of universal adaptation units to interface with the all of the stages in the pipeline; it would be obvious that the adaptation unit have a switch in order to be interactive with any processing stage of a pipeline).

As to claim 10, Wise et al. disclose the processing system including a register that is configured to control the selective coupling of the auxiliary elements into the plurality of pipeline ([0044]).

As to claim 11, Applicant's Admitted Prior Art discloses the processing system including: a data fetch module operably coupled to each of the pipelines, that is configured to facilitate acquisition of the data, and a mixer operably coupled to each of the pipelines, that is configured to merge the data from two or more pipelines of the plurality of pipelines (Figures 1 and 2).

As to claim 12, Wise et al. disclose the processing system wherein the plurality of auxiliary elements includes a number of duplicate copies of a functional element, and the number of duplicate copies of the functional element is less than a number of pipelines in the plurality of pipelines ([0423] thru [0428]).

As to claim 13, Wise et al. disclose the processing system including a controller that facilitates the selective coupling of the auxiliary elements into the plurality of pipelines ([0036] thru [0085]: note that the control/data tokens are in the form of universal adaptation units to interface with the all of the stages in the pipeline; it would be obvious that the adaptation unit have a controller to

control the interaction with any processing stage of a pipeline).

As to claim 14, Wise et al. disclose the processing system wherein the
controller is configured to effect the selective coupling upon commencement of
an application that is executed via the processing system ([0036] thru [0085]:
note that the control/data tokens are in the form of universal adaptation units
to interface with the all of the stages in the pipeline; it would be obvious that
the adaptation unit have a controller to control the interaction with any
processing stage of a pipeline).

As to claim 15, Applicant's Admitted Prior Art discloses an integrated circuit
comprising a plurality of homogeneous pipelines (Figure 1), but does not
disclose a controller that is configured to enable a modification of one or more
pipelines of the plurality of homogeneous pipelines to produce a plurality of
heterogeneous pipelines.

Wise et al. disclose a controller that is configured to enable a modification of
one or more pipelines of the plurality of homogeneous pipelines to produce a
plurality of heterogeneous pipelines ([0036] thru [0085]).

It would have been obvious to one of ordinary skill in the art at the time of the
invention to modify Applicant's Admitted Prior Art pipelines with Wise et al's

method of reconfiguring pipelines to enhance the performance and flexibility of

processing data in a pipeline.

As to claim 16, Wise et al. disclose the integrated circuit including one or more

auxiliary elements that are configured to be selectively inserted within the one

or more pipelines by the controller to produce the plurality of heterogeneous

pipelines ([0036] thru [0085]).

Conclusion

Any inquiry concerning this communication or earlier communications

from the examiner should be directed to JACINTA CRAWFORD whose

telephone number is (571)270-1539. The examiner can normally be reached

on M-F 8:00a.m. - 5:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Xiao Wu can be reached on (571) 272-7761. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

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9197 (toll-free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

JMC

XIAO WU
SUPERVISORY PATENT EXAMINER